

URGENT LETTER FROM MEDICAL PROFESSIONALS ON GM MUSTARD

To:

05/12/2022

The Honorable Prime Minister of India

Government of India.

Subject: Request for Immediately Nullifying Environmental Release of GM Mustard and Destruction of the fields planted to GM mustard

Dear Honourable Prime Minister,

As medical professionals and nutritionists, we welcome your initiatives to encourage farming without toxic synthetic chemicals. This should be India's policy on food. We are, therefore, deeply concerned about the dangerous 'environmental release' of a genetically modified (GM) mustard DMH-11 and its two parental lines which are tolerant to the herbicide glufosinate ammonium. We are not opposed to application of gene technologies in medicine, as it is done after thorough testing, consumed by individual choice, closely monitored by expert doctors, with the GMO-mediated medicines/supplements prepared in contained conditions without any release of GMOs into the environment and can be halted/recalled. GM in FARMING AND FOOD is both uncontrollable and irreversible and affects both present and future generations. It involves modified heritable material that has the ability to procreate and spread in living organisms. In terms of health impacts, an adequate scientific body of evidence exists about various adverse health impacts on immunity, reproductive health, growth and development, vital organs and even carcinogenicity - from a combination of toxic genes used in genetic engineering, the GE process itself and the deadly chemicals used on GM crops. It must thus be a last resort when no other options exist and subject to proper long term biosafety tests for transparent peer review. It has been seen time and time again, however, that crop developers and regulators circumvent the need for comprehensive testing, because they know that the inherent lack of safety in this technology will get captured in the results of such testing.

In the case of GM mustard, a patently untenable claim is being made including in submissions to the Supreme Court that the herbicide glufosinate will only be used for seed production and that farmers will be prevented by legislation from spraying it for weed control. Illegal HT cotton and illegal spraying of the dangerous herbicide glyphosate has been taking place for the past decade or more, without Governments being able to stop it. Once environmentally released, GM mustard will spread and so will the use of glufosinate. Our entire population consumes mustard as seeds, leaves and oil. As medical professionals, we feel it is our duty to warn about the serious adverse impacts of Herbicide Tolerant GM crops which, in effect, this GM mustard DMH-11 is.

1. The Herbicide Tolerance (HT) Genetic Modification of DMH-11 mustard and its parental lines enable the spraying of the herbicide, glufosinate, which will be absorbed as higher toxic chemical residues by this GM HT mustard, passed on downstream to consumers. This ignores the recommendations of three High Level Committees: The Technical Expert Committee of the Supreme Court (2013) and the unanimous reports of two multi-party (including BJP) Parliamentary Standing Committees (2014 and 2017) which examined GM crops in detail. **All the Committees recommended a complete ban on Herbicide Tolerant crops in Indian conditions, giving cogent reasons. We endorse these recommendations and request you to halt the open air planting of GM mustard DMH-11. We urge the uprooting of any seeds that have been planted before they reach the flowering stage and DMH-11 spreads irreversibly.**

2. We emphasize that opposition to GM is scientifically sound. **In 2001 over 760 eminent scientists highlighted the unpredictable and unintended dangers from the genetic modification process including “...the spread of antibiotic resistance marker genes that would render infectious diseases untreatable, the generation of new viruses and bacteria that cause disease, and harmful mutations which may lead to cancer.”** They urged all Governments “*to impose an immediate moratorium on further environmental releases, including open field trials, in accordance with the precautionary principle as well as sound science*”. **Over the past 25 years, the poor performance and the irreversible risks of GM crops have been such that only 5 countries still account for 91% of global GM crop area. Most countries follow the Precautionary Principle and do not grow GM crops (ISAAA data).** Many of the early apprehensions by scientists have now been validated, despite the difficulty in conducting epidemiological studies in the absence of labelling laws in USA which is the largest and longest GM crop growing nation. A larger body of scientific studies through experimental studies is also present that captures the adverse impacts.

3. Herbicide Tolerance (HT) genetic modification allows the GM HT crop to survive the indiscriminate spraying of a particular toxic herbicide, while all other non-HT plant life like weeds, mixed crop, trap crop, fodder etc. coming in contact with the herbicide, dies. **The decimation of all plant life other than the GM HT crop deprives the poor of nutritious ‘weeds’ as food and medicine, reduces fodder for animals which in turn has implications for animal-based nutrition, eliminates desirable diversity of crops for home consumption and forces consumers to ingest the herbicide residues on the HT crop.** Beekeepers also report that in GM crop areas, bees are adversely impacted and GM contamination of honey will affect its quality and exportability.

4. **Herbicides are powerful pesticides and the Special Rapporteur on the Right to Food at the UN General Assembly's Human Rights Council in 2017 (A/HRC/34/48) highlighted their dangers:** *"Pesticide exposure has been linked to cancer, Alzheimer's and Parkinson's diseases, hormone disruption, developmental disorders and sterility. They can also cause numerous neurological health effects such as memory loss, loss of coordination, reduced visual ability and reduced motor skills..... chronic effects of pesticides may not manifest for months or years after exposure..."*.
5. The genetic modification with Bar, Barnase, Barstar genes, originating from 2 strains of bacteria which have never been part of human diet, and the insertion of a novel cassette which includes promoters, enhancers etc. can create novel proteins with unpredictable impacts. Further, the Herbicide Tolerance (HT) genes embedded in the GM mustard will facilitate the spraying of a herbicide, glufosinate ammonium, which is damaging for health. **We are shocked that GEAC has till date not put biosafety test data up for peer review despite an order by the Central Information Commissioner in 2016 calling for it and despite Supreme Court orders on the same. We also understand that the necessary long term, intergenerational and other biosafety tests have not been done, and the limited tests done on GM mustard (lesser in number than were taken up for Bt brinjal even though mustard is grown on 11-fold more area). All this makes DMH-11 clearance as 'safe' for environment release by the Genetic Engineering Appraisal Committee (GEAC) highly questionable and objectionable. It is also disturbing that an independent testing laboratory for verifying safety claims by GM developers has not yet been set up despite repeated recommendations for it.**
6. Glyphosate herbicide was once used with almost all GM HT crops, increasing 15 fold in 20 years. When weeds became resistant through constant exposure, other more toxic weedkillers started to be increasingly used. Glufosinate ammonium is an organophosphorous compound, acting as a systemic, broad spectrum and non-selective herbicide which kills a wide range of plants and soil microbes. Though it is classified by WHO as slightly riskier than glyphosate, it has not yet been the subject of independent research like glyphosate. **The experience of denial of harm by crop developers and regulators for glyphosate, and the eventual revelations of harm should be a warning for us about the risks of glufosinate ammonium.**
7. **When independent researchers issued warnings about glyphosate based on animal studies, these were denied and derided. Inaction by regulators can go on for decades, as happened with tobacco and DDT, in the case of products which cause harm over long durations. Independent researcher Dr Nancy Swanson and others (2014) reported**

highly significant ($R \Rightarrow 0.90$) Pearson correlation co-efficient between increase in GM crops, glyphosate use in USA and diseases such as acute renal failure, senile dementia, diabetes, hypertension, stroke, autism, inflammatory bowel syndrome and cancer of thyroid, liver, bladder, pancreas and kidney. This was derided, but should have been studied.

8. **When, in 2015, WHO's International Agency for Research on Cancer defined glyphosate as "probably carcinogenic to humans", US regulators supported the developers' contention that glyphosate was safe. Only after US courts began imposing penalties of millions of dollars on Monsanto (now Bayer) and over \$ 10 billion was paid by Bayer to settle about 100,000 claims mainly of non-Hodgkins lymphoma, has GMO labelling been mandated from Jan 2022.**

Hippocrates said "*Let your food be your medicine*" 2500 years ago, and the vedas had enunciated the importance of purity in food for physical, mental and spiritual development long before that. The covid pandemic has taught us the importance of a healthy diet in building immunity and safeguarding health. Profit driven corporates and those funded by them have no such concerns. Pesticides affect both the rich and poor, but those who are malnourished, pregnant women, the developing foetus, the very young and the very old are most vulnerable to damage to their physical and mental health. We therefore appeal for:

1. **A complete ban on all HT crops, including GM mustard which has herbicide tolerance properties, as they increase the use of herbicides dangerous to health.**
2. **A halt to all GM crop releases until an independent test laboratory is established as recommended by the late Padma Bhushan Dr. P. M. Bhargava, Supreme Court nominee to GEAC and eminent Founder Director of the Centre for Cellular & Molecular Biology.**
3. **Uprooting of all DMH-11 mustard that has been planted, to prevent the accidental or deliberate spread of a GM HT mustard in the country.**
4. **Halting the illegal spread of GM crops and illegal use of herbicides.**
5. **Implementation of the recommendations of the Technical Expert Committee of the Supreme Court, and the reports of the Parliamentary Standing Committees.**

People have put their faith in you and nothing is more important than their health and that of their children. We are confident that you will fulfil their faith.

Sincerely,

Rupal Dalal

Dr Rupal M Dalal, Pediatrics, Mumbai

Endorsed by:

1.	Padma Bhushan Dr Farokh E. Udwadia	Physician	Mumbai
2.	Padma Shri Dr Ramakant Deshpande	Surgical Oncologist	Mumbai
3.	Dr Shri Gopal Kabra	Anatomy and Surgery	Jaipur
4.	Dr Gurprit Inder Singh	Preventive & Social Medicine	Panchkula, Haryana
5.	Dr Shubha Badami	Pediatrician	Bangalore
6.	Dr Asha Doddamane Benakappa	Pediatrics and Nutrition	Bengaluru Karnataka
7.	Dr Devesh M Desai	Diabetes and Homeopathy	Mumbai
8.	Dr Pradeep Kumar	Pediatrician	Bangalore
9.	Dr Sushama Madhukar Vale	Community Medicine	Pune
10.	Dr Venkatesh Murthy KT	Anesthesiology	Bengaluru
11.	Dr Nikhil M Kharod	Pediatrician	Anand
12.	Dr Shalini	Pediatrician	Bengaluru
13.	Dr Shashirekha Priyadarshini M S	Pediatrician	Ramanagara
14.	Dr Apurva Ganesh Kale	Pediatrician	Amravati
15.	Dr Mangeshkar Prashant	Gynecological Endoscopic Surgeon	Mumbai Maharashtra
16.	Dr Tulika Singhal	Family Medicine	Mumbai Maharashtra
17.	Dr S Kanchana	Pediatrician	Basaveshwaranagar
18.	Dr Amritlal Bhanuprasad Dave	Anaesthesiology	Mumbai
19.	Dr Geeta Karambelkar	MD Pediatrics	Pune, Maharashtra
20.	Dr Bhavana Lakhkar	Pediatrics	Nagpur
21.	Dr Lalita Kedia	MBBS DGO FCGP DNB	Mumbai
22.	Dr Vedavathy S	Paediatrics	Koppal
23.	Dr Mahendra Nath Misra	Anesthesiology	New Delhi

24.	Dr Gurmeet Kaur	Pediatrician	Ludhiana Punjab
25.	Dr Nirjala Dharap	Pediatrician	Pune
26.	Dr Vimochana K	Pediatrician	Bangalore
27.	Dr Sunita Manglik	Family Physician	Mumbai
28.	Dr Bharat Shah	Paediatrician	Vadodara
29.	Dr Vikram Popatlal Patel	General Practitioner	Goraj, dist. Vadodara
30.	Dr Radha	Paediatrician	Baroda
31.	Dr Parul Sumit Shah	MD Pathologist	Alkapuri Vadodara
32.	Dr Aquinas Edassery	Gen Medicine	Bhawanipatna
33.	Dr Nina Lakhani	Family Physician	Malad, mumbai
34.	Dr Haresh Shah	General Surgery	Kosamadi, Gujarat
35.	Dr Shakeel ur Rahman	Radiodiagnosis	Patna
36.	Dr Rakshit Akruwala	MBBS; PGCIH; PGCAH	Vadodara
37.	Dr Praveen Saxena	Clinical metal toxicologist, Radiologist	Hyderabad
38.	Dr Tanisha Gulati	MBBS	Bihar
39.	Dr Jyoti Puthran	DNB Internal Medicine	Bangalore
40.	Dr G Suresh Reddy	Homeopathy	Hyderabad
41.	Dr Randall Sequeira	MD Medicine	Bhawanipatna
42.	Dr Vandana Prasad	Community Pediatrics, Public Health	Noida
43.	Dr M D Malviya	MBBS	Gujarat
44.	Dr Mufassil Dingankar	Drug Safety (Pharmacovigilance)	Mumbai
45.	Dr Mohan Rao	Public Health	Bangalore, Karnataka
46.	Dr Ranjan Solanki	Community Medicine	Nagpur
47.	Dr Nidhin	Public Health	Mumbai
48.	Dr Vitthal Salve	Physiology	Sevagram
49.	Dr Shruti Sridhar	General Physician	Pune
50.	Dr Shalu Chaudhary	Community Medicine	Ahmedabad
51.	Dr Anjali Pathak	Naturopath	Lucknow, Uttar Pradesh
52.	Dr Pradeep Kumar	Anaesthesiology	Chennai
53.	Dr Ami Yagnik	General Surgery	Surat
54.	Dr P Shylaja Devi	Ob Gyn	Gudalur
55.	Dr Sadanand Nadkarni	General Surgery	Mumbai
56.	Dr Adithya Pradyumna	Public Health	Bengaluru

57.	Dr Mira Shiva	MD Medicine	New Delhi
58.	Dr Nithya Sivan	Ayurvedic Physician	Chennai
59.	Dr Sailakshmi Sivaram	Pediatrics	Chennai
60.	Dr Selvi Radhakrishna	Cancer Surgeon	Chennai
61.	Dr Prabir Chatterjee	Community Medicine	Kolkata
62.	Dr Pramila Ramkumar	General Practitioner	Chennai
63.	Dr Viveka P Jyotsna	Endocrinology	Delhi
64.	Dr Ritika Kapoor	Paediatric Endocrinology	London, UK
65.	Dr Nandakumar	Ortho	
66.	Dr Anurag Gumashta	Ship and oil rig GP	Baroda
67.	Dr Savitri Ramaiah	Community Medicine	New Delhi
68.	Dr Madhu	Diabetologist	N.Paravur,Kerala
69.	Dr Pushya A Gautama	Ayurveda	Bengaluru
70.	Dr Shajehan S	Neurosurgery	Thiruvananthapuram
71.	Dr Usha R	Neurosurgery	Trivandrum, Kerala
72.	Dr Shivanand Pawar	Family Physician	Ranebennur, Karnataka
73.	Dr Veena Shatrugna	Clinical Biochemistry	Bengaluru
74.	Dr Abhay Shukla	Public health	Pune
75.	Dr Manu Madhavan. A	BAMS	Kerala
76.	Dr Bina Shah	Naturopathy	Vadodara
77.	Dr Sreelatha	ENT	Ernakulam
78.	Dr Satish Gogulwar	Community Health	Gadchiroli
79.	Dr Varadachary Srinivas	Urologic Oncology	Mumbai
80.	Dr Rajesh Mehta	Community Medicine	Ahmedabad
81.	Dr Niraj Pandit	Community medicine	Vadodara
82.	Dr Shyamsundar J Raithatha	Community Medicine	Anand, Gujarat
83.	Dr Tapasvi Puwar	Community Medicine	Ahmedabad
84.	Dr Jitendra Tanna	MBBS	Junagadh
85.	Dr K Dasaradharamaiah	Nature Cure	Tenali, Andhra Pradesh
86.	Dr Ramakant Prasad	Medicine	Patna Bihar
87.	Dr Nisheeta Agarwala	Ophthalmology	Mumbai Maharashtra

88.	Dr Ashoojit Kaur Anand	Community Medicine - Family Physician Palliative physician	Bangalore
89.	Dr FS Bhabha	Paediatrics	Mumbai
90.	Dr Goutam Sen	Cardiovascular and Thoracic Surgery	Jaipur
91.	Dr Dilnawaz Buhariwalla	Obstetrics and Gynecology	Nagpur
92.	Dr Sanghamitra Panda	Paediatrics	Cuttack
93.	Dr Gautam Das	General Medicine	Kolkata
94.	Dr Padmini Raghavan	MD, Obstetrics and Gynaecology	Chennai, TamilNadu
95.	Dr Rajendra Kumar Gupta	Maternal and Child Health	Jaipur
96.	Dr Asmita Jadhav	Ayurveda	Pune
97.	Dr Medha Jitendra Kshirsagar	Pharmacology	Pune City
98.	Dr Rajesh Roy	General Physician in Homoeopathy	Kolkata
99.	Dr Sangita Lodha	Pediatrics	Nashik
100	Dr Nisha V Krishnan	Pediatrics	Kerala
101	Dr Jayshree Kumbhare		Pune
102	Dr Kalpesh Gajiwala	M.S., M.Ch.	Mumbai
103	Dr M J Fancy	MD PSM	Gujarat
104	DR J H Hariyani	MBBS	Palanpur
105	Dr Raj Sutariya	PGDHM	Himmatnagar
106	Dr Nilesh Fichadiya	Community Medicine	Rajkot, Gujarat
107	Dr Karishma Dholiya		Bhavnagar
108	Dr Taher Kagalwala	Paediatrics	Mumbai
109	Dr Ila Bharat Desai	General Physician	Mumbai
110	Dr Dasari Sampada	BAMS, Master in Ayurvedic Dietetics	Pune
111	Dr Geeta Z Vaghasiya		Bhavnagar, Gujarat